DMX TROUBLESHOOTING

DMX problems can be particularly irksome, and time-consuming, to troubleshoot. Providing a comprehensive list of all possible problems and solutions is beyond the scope of this web site, but here are some common issues:

- The device does not function at all.
  - If no devices in that universe are working, then check the following:
    - The outputs of the console may be incorrectly configured.
    - You may have a bad DMX cable between the console and the first device in the DMX chain.
    - There may be errors in patching (in the console) or the addressing of the device. Note that, depending upon your console, a device with DMX address #001, connected to universe #2, might need to be patched as address #513. The same device, connected to the third universe, would be addressed as #1025. This is because the console treats the first universe as addresses 1 through 512, the second universe as addresses 513 through 1024, the third universe as addresses 1025 through 1536, etc.
  - If multiple subsequent devices in the DMX chain also are not working:
    - There may be a bad cable between the last working unit and the first non-functioning device.
    - The last working unit may have a "Termination" switch set to the "On" position. Only the last fixture in each chain should be terminated.
    - Patching and addressing errors are also possible (they're *always* possible), but are less likely.
- The device functions, but incorrectly (For example, a command meant to pan a moving mirror causes it to tilt instead).
  - This is usually caused by the unit's being incorrectly addressed or patched.
  - If the device has multiple operating modes, or "personalities", make sure the correct one has been selected. Refer to the device's user manual.

- The device strobes and/or randomly flashes or moves This is a very common issue, and the most cumbersome to fix. There are two likely problems:

  - Is the DMX cable run parallel with, and within 6" of, a power cable, conduit, or extension cord? If so, move it farther away.

  - You may have a bad cable. To troubleshoot this:

    - Power down the devices for at least 30 seconds
    - Disconnect the DMX cable from the console to the first device, and those between each device.
    - Restore power.
    - Reconnect the DMX cable from the console to the first device and then, one by one, those between it and subsequent units in the chain. When the problem resumes, you've found the bad cable.

      These problems are likely to affect fixtures both downstream and upstream from the offending cable, so you will have to check every cable; you cannot locate the problem merely by noting which is the first malfunctioning unit.

      There are various meters available to test DMX cables, but please note that they will not necessarily catch every defect.

  - If the DMX run is long, you may have a termination issue. An unterminated run may result in a shadow signal which bounces back through the run, causing unpredictable (but rarely desired) results. If the last device in the chain has a termination switch, set it to "On"; otherwise, you will need to plug a DMX terminator into the output of the last device in the run. These can be rented or purchased, or you can easily build your own by soldering a 120 ohm resistor across the Data 1 plus and minus terminals.

    It is good practice to terminate every run, no matter how short.